

Chapter 4

Office Opening

4.1 Office Action Opening

4.2 Status of Claims

2 – 1 Office Statement

Claims 25-39 are pending. Claims 1-24 are canceled. And claims 25-39 are new.

2 – 2 Applicant Response to Office Statement

Claims 25-39 are canceled in this amendment. So claims 1-39 are now canceled. New claims are submitted.

4.3 Response to Arguments.

1. Applicants arguments with respect to claims 1-9 and 17-24 have been considered but are moot in view of the new ground(s) of rejection.

3 – 1 Applicant Response to Office Statement

The office rejection based on Bansal is invalid as shown below. The other grounds of rejection are also invalid as shown below. Bansal is a case of interest rates only and so can not invalidate claim 25 which is for equities and interest rates. The office rejection also continues to assert lack of a practical use. Because of this, the previous arguments are not moot, but bear on these points. These now need to be answered in full by the USPTO.

Chapter 5

Office Specification Rejection

5.1 Specification Rejection New Matter

1 – 1 Office Statement

The amendment filed 01/06/2010 is objected to under 35 USC 132 (a) because it introduces new matter into the disclosure. 35 USC 132 (a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: Section 3-1 Steps in Regime Switching Economic Scenario Generation.

Applicant is required to cancel the new matter in the reply to this Office Action.

1 – 2 Applicant Response to Office Statement**1 – 2.1 2163.06**

[http://www.uspto.gov/web/offices/pac/mpep/documents/2100_2163_06.
htm](http://www.uspto.gov/web/offices/pac/mpep/documents/2100_2163_06.htm)

**2163.06 Relationship of Written Description Requirement to
New Matter**

Stated another way, information contained in any one of the specification, claims or drawings of the application as filed may be added to any other part of the application without introducing new matter.

1 – 2.2 Annotated version of specification cites source for contents added

**2163.06 Relationship of Written Description Requirement to
New Matter**

When an amendment is filed in reply to an objection or rejection based on 35 U.S.C. 112, first paragraph, a study of the entire application is often necessary to determine whether or not "new

matter” is involved. Applicant should therefore specifically point out the support for any amendments made to the disclosure.

Note that in this case, examiner asked for a tutorial from applicant in the personal interview. This was solely for examiner’s convenience because he lacked a background in academic finance, Wall Street quant programming, derivatives, risk management, insurance risk management, stochastic processes and the like. It was not based on anything in the claims.

Applicant said he would provide this on the side, and examiner said no, that he didn’t want it just for him, and so examiner instructed applicant to put it in the specification.

An annotated version of the specification is provided. This includes corrections of typos and/or poor notation choices. The annotated version footnotes where in the original specification the additions come from, or where they are inherent parts, such as time nodes are inherent parts of a scenario, or where they are in the literature, such as time nodes again, which are old in the art.

The addition to the specification was a tutorial requested by the examiner. That is where it comes from. It does not add new matter, it is a convenience for the examiner that the examiner requested in 2009 at the personal interview. When the applicant said he would provide it on the side, the examiner said no, put it in the specification for everyone. The annotated version demonstrates with numerous footnotes that this is a tutorial for the examiner's convenience, which is the origin of it. It was never applicant's idea at all.

1 – 2.3 Examiner asked for tutorial

During the personal interview in 2009 at USPTO's offices, examiner asked for an introductory level tutorial. This tutorial would be one that was appropriate for someone with essentially no prior background in academic finance, mathematical finance, programming derivative calculation code, and so on.

Examiner asked for a simplified basic level explanation provided to him. It was clear from the discussion in the personal interview that the tutorial would not not presuppose any prior knowledge of the field so he could understand

and respond to the claims on the substance.

The personal interview prior to this point had consisted in part in explaining the field at the level of the lay person with no prior knowledge of academic finance, mathematical finance, financial derivative programming, stochastic processes or the like.

1 – 2.4 Applicant offered tutorial on side

During the personal interview, in response to examiner's request, Applicant agreed to provide an introductory tutorial on the side, i.e. not in the specification. This would presuppose no prior background in effect. Those words were not spoken exactly that way, but it was clear this was what was being discussed.

1 – 2.5 Examiner said put tutorial in the specification

Examiner then said no, he didn't want it on the side just for him, but he wanted it added to the specification so that everyone could read it.

1 – 2.6 Applicant complied with examiner instruction

So applicant complied and wrote out a simplified tutorial level explanation for examiner to have so examiner could respond to the claims on the substance, and as examiner explicitly told applicant to do, put this detailed explanation prepared for the examiner to be able to understand better to respond to the claims in the specification itself by amendment.

To repeat, examiner requested the addition of an explanation easier and specifically tailored for him to follow during the interview and out of the discussion during the interview and implicitly reflecting the introductory lay person level of the interview. Applicant then drafted the addition to the specification based on the interview where examiner showed he needed a more basic level guide to follow. At the same time he asked for a claim that made the improvement easier to understand.

Examiner wanted the claims to include more references to the computer. This is where the long detailed information in claim 25 came from, this specific instruction from examiner to write it that way.

Examiner said at the same time to add a simplified explanation for him to understand the claims more easily. As indicated above, when applicant took this as an instruction to provide that on the side to the application, examiner said no to put it in the application so everyone could read it. Applicant followed examiner's instruction on both the rewriting of the claims and the simplified basic level explanation and put that in the application as instructed and not just on the side for examiner alone as applicant had indicated at first he would in the meeting at examiner's request for an explanation at a simplified level.

In fact, examiner indicated to applicant in the interview that applicant could make those changes pre-emptively and submit an amendment before an office response. Examiner was not sure how long that would be but seemed to think it would be a while, but that he did not have control over that and the system would indicate to him when to work on a reply. as it was, the reply in 2009 after the interview came before applicant had time to submit an amendment with the changes in the specification and claims

examiner had indicated he wanted. so applicant put those in the amendment of January 2010, the next amendment that applicant submitted after the personal interview.

1 – 2.7 Measure theory makes finance very hard to read

It should be noted that much of what is available in textbooks, articles and on the internet uses the language of measure theory. This is done even when its not really needed. As a consequence, its very difficult for people to read, even if they have a physics background. Standard undergraduate and graduate physics texts don't mention measure theory at all in most cases.

One can look at Wilmott Forum on measure theory.

"measure theory" site:wilmott.com

Google has "About 364 results".

One can look in the comments under Billingsley Probability and Measure Theory at Amazon. Billingsley is used by many finance Ph.D. students or finance quant professionals.

<http://www.wilmott.com/blogs/paul/index.cfm/2008/12/9/Frustration>

Frustration Posted At : December 9, 2008 12:51 PM — Posted By : Paul Wilmott

And a large number of people complain to me in private about what I have started calling the 'Measure Theory Police.' These 'Police' write papers filled with jargon, taking 30 pages to do what proper mathematicians could do in four pages.

In contrast, one can look at the comments on J.D. Jackson *Electrodynamics* at Amazon. This is the standard Ph.D. textbook on that subject. There they complain about the problems being hard and the text hard to read. Jackson has no measure theory. So math applied to partial differential equations, which is part of this patent, even without measure theory is hard. Some quant groups only want to hire people with a physics background who have done applied math partial differential equation problems like those in Jackson. Search: (physics quant jobs) to get an idea of this track.

So in the worst case scenario, quantitative finance requires a person to have done some of the problems in Jackson (almost no one has done all of them)

and read the measure theory in Billingsley.

1 – 2.8 Difficulty of math finance materials

Obviously, this material is hard. Ph.D. exam questions are not as hard as this material. Nor are interview questions. this applies in both finance and physics and math. Interview questions for Wall St are available in books. Exam questions are below difficulty to hard homework problems which in turn are below hard research articles.

1 – 2.9 Beaglehole Tenney 1991 and Bernanke praise Double Decay

The Beaglehole Tenney 1991 paper would be considered hard for the most part, the double decay model being easier and that has appeared on a phd exam. Bomfim implemented that BT model at the Federal Reserve and that was the model Bernanke praised in 2004 and which praise is on the Fed webpage. Professor Bernanke's speech praising the work of Bomfim on, in effect, the Beaglehole Tenney 1991 Double Decay Model, at the American Economic Association in 2004 is on the Federal Reserve webpage:

<http://www.federalreserve.gov/boarddocs/speeches/2004/200401032/default.htm>

For example, Antulio Bomfim has demonstrated that the shape of the term structure of Treasury yields can be effectively described by a two-factor model, in which the first factor corresponds to the current setting of the funds rate and the second factor closely approximates medium-term monetary policy expectations (Bomfim, 2003).

The regime switching DMRP is harder than the Beaglehole Tenney Double Decay Model by several levels and is a major improvement on it. This is an improvement needed for risk management work and to minimize the cost of bailouts such as Chairman Bernanke implemented in 2008. That cost to the US government including the cost of lost tax revenues and stimulus to the states to make up their lost tax revenue is over 1 trillion dollars. Thus improvements on what Professor Bernanke praised in 2004, the 1991 Beaglehole Tenney Double Decay Model are needed by Chairman Bernanke in 2010

to help control the risk of financial institutions.

The regime switching DMRP and ESG is built on work stretching from the 1980's to the time of application. This includes published material that is considered too hard for even advanced Ph.D. classes in finance at top schools. Those classes typically don't cover the more advanced multifactor models such as the Beaglehole Tenney quadratic term structure model published in 1991 in the Journal of Fixed Income.

1 – 2.10 Terminology of additions is used in specification or prior work or is in industry

The terminology of the additions is contained in the original application and that application was accompanied by documents of applicant relating to prior work. The information given describes the process at an introductory level suitable for discussion level in the interview, and at a lower level of difficulty than in the original application or cited references.

1 – 2.11 Comparison of difficulty level of what added to finance literature and industry use

The examiner wanted a basic level description that was suitable for someone who had essentially no prior background. If one compares the added material to the specification one sees that it is at a very low level of prior knowledge of math compared to partial differential equations, stochastic processes, measure theory, and other difficult mathematics contained in textbooks and papers on finance. Even Wikipedia articles are at an advanced level of math in finance.

The theory of pricing in finance is described in the following 3 articles. These are much more difficult to understand, especially for lay readers, than the simple tutorial added to the specification.

http://en.wikipedia.org/wiki/Risk-neutral_measure

http://en.wikipedia.org/wiki/Forward_measure

[http://en.wikipedia.org/wiki/Heath%E2%80%93Jarrow%E2%80%93Morton_](http://en.wikipedia.org/wiki/Heath%E2%80%93Jarrow%E2%80%93Morton_framework)

[framework](http://en.wikipedia.org/wiki/Heath%E2%80%93Jarrow%E2%80%93Morton_framework)

1 – 2.12 Comparison to Libor Market Model as typically presented at a more difficult level for lay person

Compare the added material to the specification to what is intended as an easy and low level introduction to the Libor Market Model, a standard model in finance, widely used:

<http://www.damianobrigo.it/bocconi.html>

Although Professor Brigo's material was not discussed during the interview in 2009, in effect, examiner wanted added material that was easier than the material by Professor Damiano Brigo even while trying to make it easy. Brigo's lectures contain references to equivalent martingale measures and measure theory that most people find quite difficult to read and understand.

The Google search "Damiano Brigo" has "About 30,200 results". He is particularly known for his lectures on the Libor Market Model and in particular for their being relatively easy to understand compare to other material. However, those linked lectures and his books on the same are far more difficult to follow than the simplified explanation added to the specification at examiner's request at the interview.

The Google search "Damiano Brigo" "libor market model" has "About 3,050 results".

The Google search: Brigo "libor market model" has "About 124,000 results".

These search results show Brigo is considered very good for explaining Libor Market Model to those without a strong good background in mathematical finance. But the level there requires a greater background than the simplified explanation added to the specification after the examiner's request at the personal interview. This reinforces why such a lower level introductory explanation would be requested by examiner at the personal interview.

Wilmot forum contains several persons praising Brigo's material for learning Libor Market Model and related models.

<http://www.wilmott.com/messageview.cfm?catid=19&threadid=5833>

His books are praised at Amazon as a good introduction and easier to understand than other sources.

Professor Brigo also has a survey as of 2007 of interest rate models and

does not include a regime switching one.

http://www.ieor.columbia.edu/pdf-files/Brigo_D.pdf

1 – 2.13 Request examiner to admit he asked for applicant to draft a tutorial explanation for him in the personal interview

Applicant requests examiner to admit he asked for applicant to draft a tutorial explanation for him in the personal interview.

1 – 2.14 Request examiner to admit he instructed applicant to put the tutorial in the specification not just give it him on the side for just him.

Applicant requests examiner to admit he instructed applicant to put the tutorial in the specification not just give it him on the side for just him.

1 – 2.15 Request no new matter admission over original specification

Applicant requests USPTO to admit that there is no new matter in the addition to the specification over the original specification based on the annotated version submitted showing the source of each item.

Applicant requests USPTO to point out any item that is new matter in the specification in light of the annotation.

Chapter 6

Claims Rejections

6.1 Claim Rejections 35 USC 101

1 – 1 Office Statement Zero Statutory Classes in Claims 25 to 27

35 USC 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent thereof, subject to the conditions and requirements of this title.

Claims 25-27 are rejected under 35 USC 101 because the claimed invention is directed to non-statutory subject matter. The claims are not directed to a

process, machine, manufacture, or composition of matter as required by the statute.

1 – 2 Applicant response

1 – 2.1 Applicant adopts method of use of a computer as start of redrafted claim

”What is claimed is the improved method of using a computer to calculate scenarios of economic variables where the old method of using a computer to generate economic scenarios costs of”

If examiner wishes a different phrasing to mean a method of using a computer, please suggest it to applicant. This also is drafted based on examiner’s statement in the personal interview in March 2009 that he wanted to see an improvement claim format. Note that economic scenarios is a standard term and is used by NAIC LHATF in VM-20, American Academy of Actuaries for its economic scenario generator and one can search ”economic scenarios” on the Internet and it is also used in the specification.

1 – 2.2 Comparison to claim 1 of 6125355 patent

See the quote of claim one from patent 6125355 in subsection.

This claim starts with "In a computer system, a method". Thus a method of using a computer is statutory even with a preamble phrase of "in a computer system.". The claim 25 had at least as much indication of use of a computer system in it as in claim 1 of 6125355. Due process and equal protection of the laws require that claim 25 be admitted as to a statutory class, the method of using a computer.

1 – 2.3 Office contradictory statements where admit claims are to a method and apparatus

At various points in the USPTO office action they indicate that the claims are directed to a machine or a method. For 103 section purposes, USPTO reads use of a computer into Bansal to reject claims 25 to 27. At other times, it claims mathematical operations only for claims 25 to 29, despite also claiming that claim 29 has two, and as close analysis shows this is because they admit claim 28 has one statutory class.

Just after this, USPTO rejects other claims for being two statutory classes at the same time, a machine or an apparatus. Although these are different claims than 25 to 27, the office is admitting that there are statutory claims

attainable (even from their own point of view) from the claims submitted in January 2010. This would be to add sufficient use of a computer to claims 25 to 27 or take away the double use in claims 29-31, 33-36, and 38-39.

In fact, there is one statutory class in those claims and claims 25-27, a method to use a computer. Evidently, claims 28, 32 and 37 were seen by the USPTO as being statutory in the context of this type of rejection.

The single statutory class is a method of using a computer in the claims 25 to 27, 29-31, 33-36, 38-39 and in 28, 32 and 37. The claims 25 to 27 make it clear its a method of using a computer by the context of the claim. In the claims 29-31, 33-36, 38-39, computer system was used by applicant to mean a method.

System can mean method and computer modifies system so computer system can mean a method of using a computer. A computer system as a physical device is a separate meaning. The context of a sentence tells us which meaning is used. Claim 28 for example, states that it is a "computer system ... comprising the steps of ..." This is evidently using computer system

to mean a method.

In the current amendment, the phrase computer system is changed to be uniformly a method of using a computer in the new claims. Thus all the claims in this current amendment are a method of using a computer and every one of them starts that way by saying a method of using a computer, or the method of claim x when a dependent claim.

Applicant requests examiner to suggest language to indicate this more clearly if he finds it not sufficiently clear that all of the claims in this amendment are now method claims for using a computer. Each claim is a method claim. Each claim is for a method of using a computer. If that is not clear in a claim, please suggest language to make it clear. Note that applicant has requested examiner to draft claims as is permitted for pro se applicants. This has not been done. Making a rejection final until that is done is therefore a violation of USPTO regulations, due process of law and equal protection of the laws.

1 – 2.4 Computer system was used to indicate a method of using a computer.

As indicated below, computer system was used to mean a method. System can mean method and computer modifies system to tell what type of method. This is how the phrase computer system was used. Thus in fact, there is one statutory class, not the zero and the two both claimed by USPTO to be the number of statutory classes claimed.

1 – 2.5 In the Bansal claims 25 to 27 based rejections, USPTO reads in use of a computer as intended.

In the rejection based on Bansal, USPTO states intended use for Bansal to use a computer. Moreover, that indicates intended use by Bansal in a method sense. Then USPTO states that this means Bansal and claims 25 to 27 are all to use of a computer. USPTO takes official notice and asserts intended use of a statutory class, use of a computer.

Thus USPTO is recognizing that claims 25 to 27 are claims to the statutory class of a method to use a computer.

1 – 2.6 Use of computer indicated in specification

Use of a computer is indicated in the specification at various points. Equation means use of a computer is explicitly stated.

1 – 2.7 Examiner asked for improvement format which implies improvement of something already statutory

The examiner in the personal interview in 2009 asked for claims drafted in the improvement format. Why would the examiner ask for a claim for an improvement if neither what was improved nor the improvement were statutory?

1 – 2.8 Applicant requests admission that applicants current ESG computer software system is statutory

Applicant asks USPTO to state explicitly that applicants current Economic Scenario Generator computer software system as a method to use a computer is a statutory method. Applicant requests that USPTO admit that a computer encoded with applicant's current computer software system is itself a statutory class, a machine. The current system is licensed to customers and has been since before 2000. It has been used to provide scenarios to Amer-

ican Academy of Actuary taskforces since 1998, including Equity Indexed Annuity and Products taskforce in 1998 and Uniform Valuation System in 2000 and to the Economic Scenario Generator workgroup in recent years.

1 – 2.9 Applicant requests admission that improvements to applicants current ESG computer software system are statutory

Applicant requests admission from USPTO that improvements in the method of using a computer from applicants software are statutory for section 101 and 112 purposes as long as they meet the other requirements of a patent. This includes method claims for improvements and for apparatus claims for a computer encoded with the computer software system.

1 – 2.10 Applicant requests admission that Academy of Actuaries ESG computer software system is statutory

Academy of Actuaries Economic Scenario Generator spreadsheet and documentation is located at the following URL.

<http://www.actuary.org/life/phase3.asp>

<http://www.actuary.org/life/phase2.asp>

The Academy of Actuaries Economic Scenario Generator spreadsheet is

at

<http://www.actuary.org/life/zip09/generator.zip>

This is for use in complying with existing or new regulations of the National Association of Insurance Commissions, NAIC, with risk management regulations of insurance companies. This requires generating economic scenarios using software on a computer. The scenarios are then used to calculate cashflows, reserves, capital required, and other data for insurance companies.

Applicant asks USPTO to state explicitly that the Academy of Actuaries economic scenario generator spreadsheet is statutory (if novel and non-obvious, etc) as a method to use a computer.

Applicant requests that USPTO admit that a computer encoded with the Academy ESG software spreadsheet is itself a statutory class, a machine.

Applicant requests that USPTO admit that a computer readable disk or other medium containing scenarios from the the Academy ESG software spreadsheet is itself a statutory class, an article of manufacture.

1 – 2.11 Applicant requests admission that improvements of Academy of Actuaries ESG computer software system is statutory

Applicant asks USPTO to state explicitly that improvements of the Academy of Actuaries economic scenario generator spreadsheet is statutory (if novel and non-obvious, etc) as a method to use a computer.

Applicant requests that USPTO admit that a computer encoded with improvements of the Academy ESG software spreadsheet is itself a statutory class, a machine.

Applicant requests that USPTO admit that a computer readable disk or other medium containing scenarios from improvements of the the Academy ESG software spreadsheet is itself a statutory class, an article of manufacture.

This applies to both section 101 rejections and section 112 rejections for practical use and the like.

1 – 2.12 Applicant requests USPTO to admit that using Economic Scenario Generators to comply with NAIC LHATF actual or draft regulations is statutory

http://www.naic.org/committees_lhatf.htm

Can try search

"economic scenarios" site:naic.org

"51 results " in Google.

1 – 2.13 Applicant requests USPTO to admit that using Economic Scenario Generators to comply with NAIC LHATF VM-20 actual or draft regulations is statutory

The VM-20 draft regulation is here:

http://www.naic.org/documents/committees_lhatf_VM-20.doc

1 – 2.14 Applicant requests USPTO to draft claims

Applicant repeats request for USPTO to draft sample valid claims as requested previously. Moreover, applicant requests USPTO to admit that making a rejection final before USPTO has drafted such claims is a violation of USPTO procedures and regulations, due process of law and equal protection of the law.

1 – 2.15 Equal protection and due process admissions requested

Applicant requests that any further USPTO final rejection based on section 101 grounds in light of the links and references to NAIC, NAIC LHATF, NAIC VM-20, American Academy of Actuaries C3 Phase III Economic Scenario

Generator is a violation of its own regulations and actions in allowing claims in other cases, CAFC opinions, US Supreme Court opinions, due process of law, and equal protection of the laws.

Applicant requests USPTO to admit that the Constitutional requirements on USPTO of due process of law and equal protection of the laws apply to it at all stages of patent prosecution and that it can not set aside the Constitutional requirements of equal protection and due process of law by any regulation, policy, or specific action.

The same applies on 112 grounds based on practical value or the like. Moreover, on 103 or other 112 grounds since applicant has requested USPTO to draft claims for a pro-se applicant from previously and again here.

1 – 3 Office Statement Two Classes both method and apparatus in claims 29-31, 33-36, and 38-39

Claims 29-31, 33-36, and 38-39 are rejected under 35 USC Section 101 because the claimed invention is directed to non-statutory subject matter.

35 USC 101 requires that in order to be patentable the invention must be

a "new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof" (emphasis added). Applicant's claims mentioned above are intended to embrace or overlap two different statutory classes of invention as set forth in 35 USC 101. A claim of this type is precluded by the express language of 35 USC 101 which is drafted so as to set forth the statutory classes of invention in the alternative only. See MPEP 2173.05(p) section II.

1 – 4 Applicant Response to Office Statement 2 Classes Issue

1 – 4.1 1 class not 2. method is the class in claims

The claims at issue are directed to a method. The phrase computer system has ambiguity. Applicant was using Computer System to mean a type of method. System can mean method. Computer can modify system as a type of method, one using a computer. This is how applicant used it. This was clear from the context.

1 – 4.2 Redraft to the method of using a computer

Applicant has redrafted the claims to use the phrase the method of using a computer. This is intended to avoid possible problems that come up with the phrase computer system as a type of method, one using a computer.

1 – 4.3 Ambiguity in phrase computer system

Here we can discuss the importance of context in interpreting the phrase computer system. There are allowed claims in other patents by USPTO where the phrase computer system is used and the claim is a method of using a computer. The USPTO has allowed claims for other patents in which Computer System is used in a claim that means a method and in other patents allowed claims where Computer System is used that means a physical device, a machine. The use of computer system at the start of a claim or in it, does not necessarily mean the claim is an apparatus claim or method claim.

1 – 4.4 6125355 patent claim one

The 6125355 patent has claim one:

1. In a computer system, a method for pricing equity securities and fixed-income securities having a no arbitrage constraint, the method comprising:

determining a fixed-income security pricing based on an inflation value, a real rate value and a term structure parameter; determining equity security pricing based on the inflation value, the real rate value, the term structure risk parameter, a dividend growth value, and an equity correlation parameter; and generating pricing data corresponding to the fixed-income security pricing and the equity security pricing.

1 – 4.5 6125355 patent discussion

Is this claim a claim to a method or to an apparatus? Context seems to imply its a method claim with some type of limitation as to it being related to a computer system.

Consider the phrase: "in a computer system, a method".

In this phrase, "in a computer system" means in a method of using a

computer is one interpretation of it. Another is that it is a way of guiding one towards limiting the claim to in this type of apparatus, however that is to be interpreted. Yet another interpretation is that it is somehow a claim to a computer apparatus as a statutory class.

If in this claim, computer system is an apparatus, it might mean you had to be inside the computer to practice the method as one possible interpretation, whereas the human user would need to program the computer to do what was intended while the human programmer was outside of the computer. In a computer system means in the method does not have this problem of interpretation.

We can try to see how the phrase, "in the method" is used in meaning to see if "in the ... system" parallels "in the method".

Searching on Google for "in the method", the 3rd hit is USPTO itself in its own statement.

Changes in the Method of Issuance and Content of Uspto

Notices of ...

Changes in the Method of Issuance and Content of Uspto
Notices of Publication in Trademark Applications. On October
6, 2009, the USPTO will begin sending ...

[http://www.uspto.gov/web/trademarks/notices/notices_of_publication_
changes.htm](http://www.uspto.gov/web/trademarks/notices/notices_of_publication_changes.htm)

This is in the title, so its not something the USPTO didn't notice. Rather,
to USPTO this is the normal way of using the phrase "in the method".

"in the method" site:uspto.gov

25 results

Now we can try "in the system" at USPTO.gov.

"in the system" site:uspto.gov

"participation in the system would be voluntary".

In the system in these cases does not mean in some apparatus. If it meant
that, applicants would have to go down and get in the apparatus at USPTO's
building. This is not what USPTO intended by "in the system".

Thus we find confirmation that "in the system" is used by some such as

USPTO to be parallel to "in the method".

As a made up example of "in a system" to mean in a method, might be a system (ie method) involving adding two numbers. One might say: In a system of calculation where you add the first variable to the second variable.

The person uses the method of using a computer. so the person is not in the computer, ie in the apparatus. so "in a computer system", is a modified phrase from "in a system", where "in a system" means in a method, just as at several examples at USPTO website by USPTO.

USPTO should issue a guideline on this problem since it has come up in this patent as a problem. Some examiners may be treating the phrase computer system to mean a method and others a machine and still others may use context. Thus Machine Only examiners reject method claims using Computer System as a method. Method Only examiners reject claims using Computer System as a machine. Context Examiners allow both depending on context.

USPTO should decide on a policy or at least alert examiners and appli-

cants of this ambiguity problem in already issued claims and to try to use context on an interim basis. This promotes a uniform system of laws consistent with the Constitutional requirement of due process of law and equal protection of the law, both to applicants and to non-applicants trying to understand what issued patent claims cover. They have a due process and equal protection requirement as well to get guidance in the USPTO policies and actions in allowing both types of claim usage of Computer System.

The above discussion gives some insight on USPTO's current situation on handling the ambiguity in the phrase Computer System. The phrase Computer System is in valid method claim language in some patent claims issued by USPTO, as shown by the example given above.

This ambiguity problem runs through the whole 35 USC 101 rejection section.

USPTO should under due process and equal protection proceed as follows. Identify this ambiguity. Put out draft guidelines for comment. Revise the draft guidelines and issue guidelines. The time it spends doing this as well

as since at least the office action of March 2010 should not count against the patent term but be added. USPTO should then respond based on the guidelines. This should include that applicant found this problem and that therefore the time since March 2010 is added to the patent term. In fact, since Jan 2010 and since the previous action while applicant was drafting the claims in 2009 in response to the prior office action.

That expert and highly diligent examiners were not aware of this ambiguity problem of Computer System shows public is not aware of it either. So USPTO has a due process and equal protection obligation to public and current litigants and others to disclose this problem to the public, issue preliminary guidelines and get input from the public. This problem impacts the entire period of applicant's examination time calculation and thus this period should be added to the term of the patent when issued.

USPTO by following the approach of issue guidelines will best assist the hard work of its own examiners not aware of this problem that bears so critically on the examination and USPTO response on this patent application.

This computer system phrase ambiguity carries over to other rejections in the USPTO communication of March 2010.

1 – 5 Office Statement Mathematical Operations only 25-29

Claims 25-29 are rejected under 35 USC 101 because the claimed invention is directed to non-statutory subject matter. Claims define nonstatutory processes if they consist solely of mathematical operations without some claimed practical application or simply manipulate abstract ideas. (See MPEP 2106.0)

1 – 6 Applicant Response to Office Statement

1 – 6.1 Note other 101 responses

Other responses on 101 are valid here.

1 – 6.2 USPTO read computer into Bansal for claim 25 to 27

USPTO read a computer into Bansal as statutory and not mathematical operations only in response to claim 25, one of the claims it lists here as not a statutory class. See subsection 1 – 2.5.

Since claims 26 to 27 are derived from claim 25, they too have a statutory class.

1 – 6.3 USPTO finds two statutory classes for claim 29

USPTO finds two statutory classes in claim 29. See discussion 4 – 1.

Claims 29-31, 33-36, and 38-39 are rejected under 35 USC 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. A single claim which claims both an apparatus and the method steps of using the apparatus is indefinite under 35 USC 112, second paragraph, *Ex parte Lyell* (17 USPQ2d 1548). See MPEP 2173.05(p) section II. The independent claims are directed to a system but the dependent claims are directed a method.

Thus USPTO is explicitly stating that claim 29 has 0 statutory classes and 2 at the same time.

1 – 6.4 USPTO derived one of the statutory classes in claim 29 from claim 28 already having a statutory class

Moreover, claim 29 is derived from claim 28. In the rejection for two classes for claim 29, USPTO is saying claim 29 adds a method class to claim 28.

On this topic, also see discussion 1 – 2.3.

Thus each and every one of claims 25 to 29 is found elsewhere in the patent to be a statutory class or two according to USPTO.

1 – 6.5 USPTO conflicting statements

At various stages, USPTO in its response indicates that the claims are to two statutory classes or implicitly one class when discussing Bansal intends use of a computer.

USPTO by its responses in other places has indicated it understands use of a computer to be what is claimed. This is a statutory class. Applicant requests that USPTO agree that use of a computer is a statutory class. Applicants claims are to use of a computer. The phrase "method of using a computer" has been used in the start of the claims submitted. Applicant

requests USPTO to admit that "method of using a computer" is a claim to a method and that it is statutory and not just mathematical operations. If USPTO does not agree "method of using a computer" means using a computer and not just mathematical operations please state so explicitly so we can define our differences. Please explain, in this case, why using a computer is the same as just mathematical operations. If USPTO does not agree that using a computer is a statutory class, please state so.

1 – 6.6 Bernanke praises practical use of BT 1991 model

The practical application is clear from the claims. Moreover, Chairman Bernanke has praised an earlier version of this method in 2004.

Professor Bernanke's speech praising the work of Bomfim on, in effect, the Beaglehole Tenney 1991 Double Decay Model, at the American Economic Association in 2004 is on the Federal Reserve webpage:

<http://www.federalreserve.gov/boarddocs/speeches/2004/200401032/default.htm>

For example, Antulio Bomfim has demonstrated that the shape

of the term structure of Treasury yields can be effectively described by a two-factor model, in which the first factor corresponds to the current setting of the funds rate and the second factor closely approximates medium-term monetary policy expectations (Bomfim, 2003).

1 – 6.7 USPTO Bansal intends computer use

USPTO states that Bansal has intended use to use a computer. These show practical use. The trillion dollar bailout from poor risk models that use a computer shows the practical use of a computer. Moreover, the previous amendment contained discussion of the practical use for risk management and referenced Bernanke's speech. Why is this not practical use? The economy is in a recession because of the failure to use better models. Applicants models are among those in use since before 2000. This is an improvement of applicant's prior software system sold to and used by major financial institutions to manage billions of dollars of risk. The process of providing the new system to customers is under way. How is this not practical use?

1 – 6.8 Practical use of ESG admission requested

Please state explicitly that these things are not practical use, if that is the USPTO view, that what Bernanke praised in 2004 is not practical use, that what Goldman Sachs employees testimony to Congress about risk management was not practical use, that the use of Economic Scenario Generators by the insurance industry in the US and Europe as required by new and old regulations is not practical use? That the hearings held by the NAIC in September 2009 on Economic Scenario Generators at LHATF is not practical use? That the new insurance reserve system using economic scenario generators is not practical use?

The Google search "economic scenario generator" gives "About 61,600 results". These are to the Society of Actuaries, Academy of Actuaries, companies that sell economic scenario generators for risk management and so forth. How are these not practical use of a computer? How can a market where large companies buy these software systems, including from applicant for over 10 years, and use them to manage billions in risk not be practical

use?

Please state that USPTO sees the licensing of an Economic Scenario Generator is practical use. Or if not, please state that and the reasons why.

Manufacturing jobs in the US have gone from about 17 million in 2000 to 11 million today. Financial services accounts for a large part of the market value of stock indices and of corporate profits. How can the risk management of financial institutions with economic scenario generators not be practical use when its replacing manufacturing as how US industry employs people and pays out earnings to stocks that are the basis of retirement plans for people? How can risk management and reporting of what replaces manufacturing in the US not be practical use in the US?

Economic Scenario Generators are an established method for risk management of financial institutions. Applicant's company has continuously licensed them since before 2000.

1 – 6.9 ESG's as much practical use as auto parts

How are Economic Scenario Generators not as much practical use as auto parts or a method of making auto parts? Simply stating something is an economic scenario generator or a method of using or making one is as much a valid end use as a method to make parts for an auto. Does USPTO dispute that?

1 – 6.10 LHATF NAIC practical use of ESGs

LHATF is a part of the NAIC which is a commission of state insurance regulators. How can LHATF oversee use of economic scenario generators for insurance companies to use for risk management reports to the states to comply with state regulation not be practical use? How can complying with regulations of the states required by law not be practical use?

The Google search: economic scenarios site:naic.org has "89 results".

1 – 6.11 Solvency 2 practical use ESG

The search: Solvency 2 "economic scenarios" has "About 5,220 results".

This is what Europe calls their regulation of the same type of risk by using

economic scenario generators.

How can America and Europe both use economic scenario generators to regulate the risk of insurance companies and it not be practical use? USPTO is requested to state that economic scenarios and economic scenario generators and methods of producing or using them are practical use just as much as auto parts are practical use or methods of using or making auto parts are practical use.

1 – 6.12 Additions to the specification

Once again, we gain insight on why examiner asked for additional explanations at the 2009 personal interview. USPTO is working its way up the learning curve on economic scenario generators, the use of them by the insurance industry, NAIC regulations, and the like. It is in the context of this learning curve that we see why examiner would request a written out further explanation at an introductory level in the 2009 personal interview. As stated previously, when applicant said he would provide that in effect on the side outside the application, examiner said he wanted it added to the

specification as an amendment, because he didn't want it just for him. (The latter phrase is close to his exact words on this point.)

These are a vital part of our economy and economic scenario generators are a vital part of managing financial service institutions, as is already reflected in regulations by government entities in the US and Europe. Thus economic scenario generators have practical use and methods of using them or making them have practical use. So are their parts and methods of making their parts.

USPTO is going up the learning curve on this, and that is why examiner requested a tutorial introductory explanation in writing. As mentioned before, when applicant said he would provide this outside the specification on the side, examiner said that he wanted it not just for him but for everyone so he wanted it added to the specification in an amendment. Applicant complied with that in the January 2010 amendment, the first amendment by applicant after the 2009 personal interview. As stated earlier, examiner had even encouraged applicant to file such an amendment before the next office

action in 2009, after the personal interview in 2009, but that did not happen.

As stated earlier, Chairman Bernanke in 2004 explicitly praised the two factor model that was in fact published by Beaglehole and Tenney in 1991 and was studied by Bomfim at the Federal Reserve. The Double Mean Reverting Process system licensed by applicant's company since the 1990's uses that framework with some differences from the 1991 BT model. This patent concerns an improvement in that system for economic scenario generation. Where the Fed Chairman and the states through the NAIC both see something of practical use for risk management of financial institution that makes it, the methods of using it, and its own parts and methods of making those parts all of practical use the same as if they were auto parts, parts of auto parts or methods for making parts of auto parts.

The parts of auto parts are as intrinsic to them as the outer part of a sphere. The same applies to the parts of an economic scenario generator and the methods of making or using those parts of an economic scenario generator. Manufacturing jobs have gone from 17 million in 2000 to 11

million in 2010 as stated before. Financial service jobs have taken the place. Economic Scenario Generators are vital tools to managing the risk of financial services. This makes economic scenario generators, their parts, the parts of those parts and the methods of making and using all of them of practical value as much as methods of making and using the parts of parts of auto parts.

Moreover, applicant's methods, models, inventions and discoveries have been a fundamental part of this industry since before 2000. Searches on Beaglehole Tenney at Google, Amazon and the like show the use in textbooks, articles, and elsewhere of these inventions, discoveries and methods. Applicants Economic Scenario Generator has been licensed since before 2000. The patent is for improvements thereof. The phrase Economic Scenario Generator was first used by applicant in a paper by Steve Craighead in the 1990's. Since then it has been copied by the industry and regulators. Applicants 1991 model with David Beaglehole has been implemented by Bomfim at the Federal Reserve and praised by the current Chairman of the Federal Reserve

in 2004 as being of practical use for modeling in this art.

1 – 6.13 People losing their homes is of practical importance

What people are employed at, make and buy and sell and use to manage risk and avoid financial crises that put millions of people out of their homes is of practical value.

Avoiding what causes millions of people to lose their homes is of practical value. The financial crisis in 2008 arose out of poor risk management of financial institutions. This led to millions losing their homes or at risk of it. More millions would have lost their homes without the government intervention which was at the over trillion dollar level including the quantitative easing that Chairman Bernanke used.

1 – 6.14 Better economic scenario methods help prevent financial crises

Economic scenarios are used in risk management of financial institutions. They are used to price securities including mortgages. Better ones lead to holding the right amount of capital and charging sufficiently for mortgages or other products to cover the risks.

The financial crisis was brought on by charging too little for risk mortgages, and for derivatives based on them, and financial institutions holding too little capital. Better economic scenarios help avoid those problems. That in turn then avoids a financial crisis where millions of people lose their jobs and homes. This is not just of practical value to the people, but the government has an interest in promoting it. This includes by granting a patent on improvements on methods of generating economic scenarios.

1 – 6.15 Improvements over what Bernanke praised are of practical value

Chairman Bernanke praised the Beaglehole Tenney Double Decay model in 2004 for this type of work. The Regime Switching ESG and Regime Switching DMRP are improvements over the Beaglehole Tenney Double Decay model.

Software, methods of using a computer, scenarios on a computer disk, a computer with the scenarios on them, methods of using them, these are all statutory classes. Economic scenarios are an item of practical value in commerce. There is a market for them. They have value for commerce and in markets.

1 – 6.16 Applicant has licensed DMRP ESG software without regime switching for over 10 years

Applicant has been licensing a somewhat similar computer software system to the Beaglehole Tenney Double Decay model since before 2000. These are among the leading models sold now by ESG vendors in the US and Europe. These are computer software systems with a market. They are used on a computer to create computer readable media with scenarios on them. Those in turn are sold or licensed.

1 – 6.17 What is sold in commerce is of practical value

What is sold in commerce as a key part and method for managing financial risk of financial institutions is of practical value. When its made with a computer or machine or a method of using a computer or machine then it is statutory.

Economic scenario generators, the software for them, the scenarios, disks with scenarios on them, and methods of using these are sold in commerce. This includes by applicant for over 10 years.

1 – 6.18 Applicant's methods are already widely used to manage risk in finance

Applicant's methods, models, inventions, and discoveries are embedded into textbooks, models, computer systems, software, and methods used widely in financial services in the US and Europe. Searches on Beaglehole Tenney, "Double Mean Reverting", "Economic Scenario Generator" etc. can conform this.

Applicant first used the phrase Economic Scenario Generator in a paper with Steve Craighead in the 1990's. The industry has since copied the phrase from applicants use in that paper and in licensing applicant's Economic Scenario Generator since the 1990's.

Economic Scenario Generators and economic scenarios are recognized in government regulations in the US and Europe and are bought and sold and are made with computers to be used with computers. Economic scenarios are thus of practical value and methods to make or use them with computers are statutory.

1 – 6.19 Applicant repeats request to USPTO to draft claims

Applicant repeats request for USPTO to draft sample valid claims as requested previously. Moreover, applicant requests USPTO to admit that making a rejection final before USPTO has drafted such claims is a violation of USPTO procedures and regulations, due process of law and equal protection of the law.

Applicant requests USPTO to redraft these clauses if not to a single statutory class. Note in the new claims, these are redrafted as the method of using a computer to avoid these issues. Applicant requests USPTO to redraft this language if it finds it insufficient to indicate a single statutory class.

Note that the specification defines terms like equation to refer to use of a computer or the use of a computer encoded version or the like.

6.2 112 Rejection New Matter

2 – 1 Office Statement

Claims 25-39 are rejected under 35 USC 112 first paragraph, as failing to comply with the written description requirement. The claim(s) contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The claims are apparently supported by the amended specification filed 1/6/10. The examiner asserts that the amendments comprise new matter which was not described in the original disclosure.

2 – 2 Applicant Response to Office Statement

2 – 2.1 Examiner requested tutorial at basic intro level

Examiner requested the addition of an explanation easier and specifically tailored for him to follow during the interview and out of the discussion during the interview. Applicant then drafted the addition to the specification based on the interview where examiner showed he needed a more basic level

guide to follow.

2 – 2.2 Applicant offered tutorial to examiner on side

Applicant offered to provide this to examiner on the side outside the application during the personal interview in March 2009.

2 – 2.3 Examiner said to put the tutorial in the specification.

Examiner said no, put it in the specification, he didn't want it just for him.

The technical level of the personal interview was at the introductory level for someone not familiar with academic finance, Wall Street quant finance programming, mathematics, or stochastic processes. This is the level of the tutorial added to the specification. This tutorial was examiner's request and idea for him to understand, it was never applicant's idea at all. Examiner was insistent he needed such a tutorial and it was examiner's idea that the tutorial go in the specification, in fact, his insistence that it would.

Applicant's prior formulas and work appear in major textbooks and are part of the practice of academic finance and Wall Street and derivative programming. Search on Beaglehole Tenney at books.Google.com to find books

citing applicants formulas.

Beaglehole Tenney "54 results" at books.Google.com

These are typically more advanced than what is asked on Ph.D. level exams in finance. One can look at the Cambridge University Tripos III exams on-line to get an idea of what that level of exam asks.

<http://www.maths.cam.ac.uk/postgrad/mathiii/pastpapers/>

[http://www.maths.cam.ac.uk/postgrad/mathiii/pastpapers/2010/Paper39.](http://www.maths.cam.ac.uk/postgrad/mathiii/pastpapers/2010/Paper39.pdf)

pdf

The application is more advanced than what is on these exams, and these are considered among the hardest exams in advanced applied math. Most of the Beaglehole Tenney 1991 paper formulas are more advanced than what is on even these advanced exams.

Examiner wanted a tutorial assuming no prior knowledge, not one that started from where these Cambridge Tripos exams stop. There are also exams on that page for stochastic calculus, probability and the like. The examiner did not want a tutorial starting from those levels in those areas

but for someone with no prior knowledge in any of the exams appearing on the page.

The tripos part II have some finance questions.

<http://www.maths.cam.ac.uk/undergrad/pastpapers/>

Stochastic finance models appear on part II towards the end:

[http://www.maths.cam.ac.uk/undergrad/pastpapers/2010/Part_II/
PaperII_all.pdf](http://www.maths.cam.ac.uk/undergrad/pastpapers/2010/Part_II/PaperII_all.pdf)

The tutorial does not start at that level but is for someone with no prior knowledge. That is why it explains basic terms like time node and scenario loop. Those are standard terms and are inherent parts of generating scenarios. It is this level that the tutorial is pitched at.

2 – 2.4 Annotated version of specification cites source for contents added

An annotated version of the specification is provided. This includes corrections of typos and/or poor notation choices. The annotated version footnotes where in the original specification the additions come from, or where they are inherent parts, such as time nodes are inherent parts of a scenario, or

where they are in the literature, such as time nodes again, which are old in the art.

The addition to the specification was a tutorial requested by the examiner. That is where it comes from. It does not add new matter, it is a convenience for the examiner that the examiner requested in 2009 at the personal interview. When the applicant said he would provide it on the side, the examiner said no, put it in the specification for everyone. The annotated version demonstrates with numerous footnotes that this is a tutorial for the examiner's convenience, which is the origin of it. It was never applicant's idea at all.

2 – 2.5 Terminology already in specification and or prior work of applicant

The terminology of the additions is contained in the original application and that application was accompanied by documents of applicant relating to prior work. The tutorial given describes the process at an introductory level suitable for discussion level in the interview, and at a lower level of difficulty than in the original application or cited references.

The examiner wanted a basic level description that was suitable for someone who had essentially no prior background. Moreover, when applicant agreed to provide that to examiner on the side, outside the specification, examiner said no, put it in the specification because he wanted everyone to have it not just him.

**2 – 2.6 For more detail see this amendment earlier discussion
specification rejection**

This is discussed in more detail in the specification rejection section of this amendment, so that doesn't have to be repeated here. The material added was introductory material requested by the examiner considerably below the level of finance textbooks or lectures or even Wiki articles or even Wilmot Forum question and answer level, which seem to work because people say they did it afterwards even though explanations are not of the simplified level added to specification based on examiner's request at interview.

People ask for help on Wilmot Forum to implement and they get enough help with those and the Brigo type material to implement models. The material added to the specification is simplified from that level for the examiner at

his request. (Examiner also seems to have gotten some assistance at USPTO, so this is consistent with having asked for a simplified explanation in writing.

Applicant indicated he would provide that to examiner on the side in effect, not in the specification. Examiner then said at interview after hearing this that he wanted that not just for him, ie outside the application, but added to the application so anyone could read it. That is why applicant added that simplified explanation to the specification and not just as an explanation to the examiner.)

Based on this, applicant wrote out an explanation at a more simplified and introductory level even than the celebrated Brigo lectures and books for examiner and included it in the specification instead of just giving it to examiner on the side as examiner specifically instructed applicant to put in the specification instead when applicant indicated he would provide the explanation on the side outside the specification.

2 – 2.7 Discussion

The tutorial added to the specification is at a basic level. The annotated version of the tutorial illustrates that clearly. The discussion later on Bansal rejections particularly the higher number claims shows that there is still a learning curve being gone up by USPTO on this application which is why examiners requested it.

2 – 2.8 Request examiner to admit he asked for applicant to draft a tutorial explanation for him in the personal interview

Applicant requests examiner to admit he asked for applicant to draft a tutorial explanation for him in the personal interview.

2 – 2.9 Request examiner to admit he instructed applicant to put the tutorial in the specification not just give it him on the side for just him.

Applicant requests examiner to admit he instructed applicant to put the tutorial in the specification not just give it him on the side for just him.

2 – 2.10 Request no new matter admission over original specification

Applicant requests USPTO to admit that there is no new matter in the addition to the specification over the original specification based on the annotated version submitted showing the source of each item.

Applicant requests USPTO to point out any item that is new matter in the specification in light of the annotation.

2 – 2.11 Request no new matter in claims admission over original specification

Applicant requests USPTO to admit that there is no new matter in the claims over the original specification based in light of the annotated version submitted showing the source of each item. ¹

Applicant requests USPTO to point out any item that is new matter in the claims in light of the annotation.

¹This shows that the addition to the specification has no new matter over the original specification, so the claims can't depend on it.

2 – 2.12 Requests USPTO to draft claims for pro se based on original specification

Applicant requests USPTO to draft claims based on the original application for applicant who is pro se.

The issue of new matter can not be the basis of a final rejection if USPTO does not draft new claims based on the original application based on USPTO regulations, due process of law and equal protection of the law.

http://www.uspto.gov/web/offices/pac/mpep/documents/0700_707_07_j.htm

When, during the examination of a pro se application it becomes apparent to the examiner that there is patentable subject matter disclosed in the application, the examiner should draft one or more claims for the applicant and indicate in his or her action that such claims would be allowed if incorporated in the application by amendment.

Also

When an application discloses patentable subject matter and it is apparent from the claims and applicant's arguments that the claims are intended to be directed to such patentable subject matter, but the claims in their present form cannot be allowed because of defects in form or omission of a limitation, the examiner should not stop with a bare objection or rejection of the claims. The examiner's action should be constructive in nature and, when possible, should offer a definite suggestion for correction. Further, an examiner's suggestion of allowable subject matter may justify indicating the possible desirability of an interview to accelerate early agreement on allowable claims.

Also

Where the examiner is satisfied that the prior art has been fully developed and some of the claims are clearly allowable, the allowance of such claims should not be delayed.

6.3 112 Rejection Antecedent Basis

3 – 1 Office Statement

The following is a quotation of the second paragraph of 35 USC 112

The specification shall conclude with one or more claims pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 25, 28, 32, 35, 36 and 37 are rejected under 35 USC 112, second paragraph, as being indefinite for failure to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. Antecedent basis

i. Claim 25:

(1) Line 1 - ... the essential regime switching ...

(2) Line 2 - ...the economic scenario generator

(3) Line 4 - ...the process parameters...the computer

(4) Pg. 24, Line 1 - ...scenarios

(5) Line 5 - ...the expected change

(6) Line 6 - ...the random change...the deviates

(7) Pg.25, line 8 - ...the regime transition

(8) Line 13 - ...the expected change vector

(9) Pg. 26, line 8 -... the parameter sets

ii. Claim 28

(10) Line 3 - ...each time node

(11) Line 4 - ...each scenario

(12) Line 8 - ...the dmrp model

(13) Line 9 - ...the value of

(14) Line 10 - ...the next time node

iii. Claim 32

(15) Line 3 - ...each time node

(16) Line 4 - ...each scenario

iv. Claim 35

(17) Line 2 - ...the Green's function

v. Claim 36

(18) Line 1 - ...the short term interest

(19) Line 2 - ...the an affine

vi. Claim 37

(20) Line 3 - ...each time node

(21) Line 4 - ...each scenario

(22) Line 7 - ...the short term interest rate

3 – 2 Applicant Response to Office Statement

3 – 2.1 MPEP quotation

http://www.uspto.gov/web/offices/pac/mpep/documents/2100_2173_05_e.htm

If the scope of a claim would be reasonably ascertainable by those skilled in the art, then the claim is not indefinite. *Energizer Holdings Inc. v. Int’l Trade Comm’n*, 435 F.3d 1366, 77 USPQ2d 1625 (Fed. Cir. 2006)(holding that “anode gel” provided by implication the antecedent basis for “zinc anode”); *Ex parte Porter*, 25 USPQ2d 1144, 1145 (Bd. Pat. App. & In-

ter. 1992) ("controlled stream of fluid" provided reasonable antecedent basis for "the controlled fluid"). Inherent components of elements recited have antecedent basis in the recitation of the components themselves. For example, the limitation "the outer surface of said sphere" would not require an antecedent recitation that the sphere has an outer surface. See *Bose Corp. v. JBL, Inc.*, 274 F.3d 1354, 1359, 61 USPQ2d 1216, 1218-19 (Fed. Cir. 2001) (holding that recitation of "an ellipse" provided antecedent basis for "an ellipse having a major diameter" because "[t]here can be no dispute that mathematically an inherent characteristic of an ellipse is a major diameter").

EXAMINER SHOULD SUGGEST CORRECTIONS TO ANTECEDENT PROBLEMS

...

A CLAIM TERM WHICH HAS NO ANTECEDENT BASIS IN THE DISCLOSURE IS NOT NECESSARILY INDEFINITE

The mere fact that a term or phrase used in the claim has no antecedent basis in the specification disclosure does not mean, necessarily, that the term or phrase is indefinite. There is no requirement that the words in the claim must match those used in the specification disclosure. Applicants are given a great deal of latitude in how they choose to define their invention so long as the terms and phrases used define the invention with a reasonable degree of clarity and precision.

A CLAIM IS NOT PER SE INDEFINITE IF THE BODY OF THE CLAIM RECITES ADDITIONAL ELEMENTS WHICH DO NOT APPEAR IN THE PREAMBLE

The mere fact that the body of a claim recites additional elements which do not appear in the claim's preamble does not render the claim indefinite under 35 U.S.C. 112, second paragraph. See *In re Larsen*, No. 01-1092 (Fed. Cir. May 9, 2001) (unpublished) (The preamble of the Larsen claim recited only a hanger

and a loop but the body of the claim positively recited a linear member. The examiner rejected the claim under 35 U.S.C. 112, second paragraph, because the omission from the claim's preamble of a critical element (i.e., a linear member) renders that claim indefinite. The court reversed the examiner's rejection and stated that the totality of all the limitations of the claim and their interaction with each other must be considered to ascertain the inventor's contribution to the art. Upon review of the claim in its entirety, the court concluded that the claim at issue apprises one of ordinary skill in the art of its scope and, therefore, serves the notice function required by 35 U.S.C. 112, paragraph 2.).

3 – 2.2 Standard terms

Many of these are standard terms. One can search on "time node", scenario, etc. and find their use in generating economic scenarios. The term "economic scenario" or "economic scenario generator" can be added.

The outside of a sphere is an essential part of a sphere. One need not

have an antecedent basis for the outside of a sphere. The search: antecedent basis patent outside of sphere, produces a number of results on this.

3 – 2.3 More reference on outside of sphere and like

See 274 F.3d 1354 in the search results. Also

<http://www.uspto.gov/ip/boards/oed/exam/past/2003oct15ama.pdf>

antecedent basis problem; that is, all circles have a center, ...

spheres have an outer surface, and all rectangles have an area,

and these .

3 – 2.4 Time node an essential part of a scenario

Time node is an essential part of a scenario. So it does not require an antecedent basis.

See also the search: antecedent basis outside of sphere site:uspto.gov.

Many of these terms are defined in the specification. These give them an antecedent basis.

3 – 2.5 Process to stochastic process

(3) changed process to stochastic process

3 – 2.6 Scenarios in preamble in one case

(4) scenarios is now in preamble, and changed scenarios to said scenarios.

3 – 2.7 Expected change is standard term and an inherent part like outside of sphere

(5) expected change

This is a standard term.

(6) economic scenario generator and essential regime switching economic scenario generator see original specification. See page 62 definition 9.5 for essential RS-VAR.

If the scope of a claim would be reasonably ascertainable by those skilled in the art, then the claim is not indefinite.

http://www.uspto.gov/web/offices/pac/mpep/documents/2100_2173_05_e.htm

Inherent components of elements recited have antecedent basis in the recitation of the components themselves. For example, the

limitation "the outer surface of said sphere" would not require an antecedent recitation that the sphere has an outer surface.

The expected change in a stochastic process is an inherent part of it just like the outer surface of a sphere is an inherent part of it.

3 – 2.8 New Claims

Where possible, in the drafting of new claims, the items kindly pointed out by examiner have been redrafted where possible to give an antecedent basis or to clarify them.

3 – 2.9 Applicant happy to work with examiner on antecedent basis as other things

As indicated, this portion of examination is largely regarded as cooperative between examiner and applicant. Applicant is happy to work with examiner in this spirit to the extent possible in this field of art and within the limitations of what is possible with brevity. Long claims may become harder to understand than shorter ones that rely on the specification, the art or the inherent parts of things. Thus shorter ones using terms that are standard or

defined in the specification are of more use to users than long ones.

3 – 2.10 More on Specification Addition request at personal interview

This again gives insight into the addition to the specification requested by examiner in the 2009 personal interview. As stated before, that was requested by examiner and when applicant indicated he would provide it on the side, examiner said that he wanted it not just for him, but for everyone so applicant should put it in the specification.

Adding more to the specification at an introductory level helps bring this out at an introductory level so that the claims can be shorter and not so overly prolix that the length itself makes them difficult to grasp. We see that problem already with the oversight of the equity part of claim 25 in the USPTO rejection based on Bansal, since Bansal does not each a combination with an equity but rates only.

As examiner wisely realized by saying the explanation provided for his benefit should be put in the specification, this method of doing things means the claims can be shorter and the terms understood more easily not be indefi-

nite by everyone, no matter what the prior level of knowledge, because of the addition of the introductory level explanation added to the specification.

6.4 112 Rejection Method Apparatus

4 – 1 Office Statement Claims 29-31, 33-36, and 38-39 are method and apparatus at same time

Claims 29-31, 33-36, and 38-39 are rejected under 35 USC 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. A single claim which claims both an apparatus and the method steps of using the apparatus is indefinite under 35 USC 112, second paragraph, *Ex parte Lyell* (17 USPQ2d 1548). See MPEP 2173.05(p) section II. The independent claims are directed to a system but the dependent claims are directed a method.

4 – 2 Applicant Response to Office Statement

This is a continuation of the problem discussed previously of the phrase Computer System meaning either a method or an apparatus.

The independent claim is a method claim which uses the phrase Computer

System as a type of method, i.e. system is used as method word and computer is a modifier of system (as a method) telling us its a method of using a computer.

4 – 2.1 Computer System Phrase avoided in redraft

The redraft avoids the phrase Computer System to better distinguish the method of using a computer as intended.

6.5 103 Rejections

5 – 1 Office Statement Claim 25

Claims 25-39 are rejected under 35 USC 103(a) as being unpatentable over Bansal (Term structure of Interest Rates with Regime Shifts, Oct 2002) in view of Official Notice.

(Note: USPTO has quoted the original text of the long Claim 25 in its entirety and added notes at certain points.

The following is the original text of the claim (from the file instead of retyped) with the notes that USPTO added.)

As per claim 25;

Bansal discloses:

Claim Quote 25 (New) What is claimed is the essential regime switching
esg improvement of the economic scenario generator where the economic
scenario generator consists of

entering data related to the process parameters into the computer using
one of a plurality of a text editor, computer interface, disk, file, computer
memory, external source, (or electronic means)

state variable generation on the computer, which consists of the steps of
one of a plurality of initializing needed memory and using previously initial-
ized memory, iterating over scenarios using one of a plurality of computer
memory and computer readable media

wherein a scenario consists of a loop over time nodes,

wherein at each time node the state variables are advanced by the steps
of calculating the expected change vector in the state variables, calculating
the random change by obtaining the deviates from one of a plurality of val-
ues stored in memory, values in a file, pseudo random generation with the

processor of the computer, quasi random monte carlo generation with the processor of the computer, multiplying the vector of deviates by a matrix in computer memory, adding the expected and unexpected change vectors to get the total change vector, adding the total change vector to the old state vector to get the new state vector

and the improvement consists of

entering the parameters of the regime process (Pg 2002, Para. 4) through one of a plurality of of a text editor, computer interface, disk, file, computer memory, external source, (or electronic means)

one of a plurality of specifying the initial regime and state variable, calculating with the computer processor the initial state variables given one of a plurality of an initial regime communicated to the computer memory, calculating both the initial regime and the initial state variables using the computer processor,

substituting for the time node step

first determine a regime index by one of a plurality of use a regime in-

dex for this time node step previously calculated in memory based on the regime transition probability matrix and the previous regime index and random selection of the regime index in accordance with the regime transition probability matrix and the previous regime index (Pg. 2000, Para. 3 and Pg. 2034, Para. 2)

then the state variables are advanced by the steps of calculating the expected change vector in the state variables using the regime index to select the parameters in this calculation (Pg. 1999, Para's 4 and 5),

calculating the random change by obtaining the deviates from one of a plurality of values stored in memory, values in a file, pseudo random generation with the processor of the computer, quasi random monte carlo generation with the processor of the computer, multiplying the vector of deviates by a matrix whose elements are determined by use of the regime index to select among the parameters used to calculate the matrix in computer memory, adding the expected and unexpected change vectors to get the total change vector, adding the total change vector to the old state vector to get the new

state vector (See preamble of Jepson claim above)

wherein there are at least two distinct regimes in that the parameter sets differ by at least one parameter in the two regimes and at least one parameter relating to a variable in the essential regime switching economic scenario generator used to calculate a rate and one parameter relating to a variable used to calculate an equity variable have values that are different in at least two regimes. (Pg. 1999, Note 1) ♠

Bansal does not disclose the computer system used above however, the examiner takes Official Notice that general purpose computers are designed to be configured to perform calculations.

5 – 2 Applicant Response to Office Statement

5 – 2.1 USPTO recognizes "computer system used above" in applicant claim 25 not just mathematical operations and reads computer system into Bansal paper

First note that the USPTO itself in this statement says that there is disclosure of a computer and use of a computer in this claim and the others. This contradicts the rejection made by USPTO elsewhere that the claims are

rejected for just stating mathematical operations.

Moreover, USPTO is reading a computer into Bansal. USPTO argues that this is acceptable. This means that the recitation of a computer needed in a claim is minimal. Applicant's claims explicitly mention use of a computer and do so more than Bansal does, which USPTO finds to be enough or finds it comfortable to consider equivalent.

5 – 2.2 Rejection on Bansal missed equity

The claim recited by USPTO contains the following phrase towards the end,

wherein there are at least two distinct regimes in that the parameter sets differ by at least one parameter in the two regimes and at least one parameter relating to a variable in the essential regime switching economic scenario generator used to calculate a rate and one parameter relating to a variable used to calculate an EQUITY variable have values that are different in at least two regimes. (Pg. 1999, Note 1)

Equity has been capitalized in this quotation to emphasize. Nowhere in the Bansal article are equities discussed. Bansal is rates only. Thus Bansal can't be prior art to this claim.

5 – 2.3 Bansal CIR model has no equities

Note that Bansal is working with the Cox, Ingersoll and Ross (CIR) term structure model. The CIR model does not have equities in it. Note that Beaglehole Tenney developed some of the mathematical machinery for the one and two factor and multifactor Cox, Ingersoll and Ross models in their 1991 paper in the Journal of Fixed Income.

Google search: Beaglehole Tenney Cox Ingersoll Ross has 413 results.

5 – 2.4 Why USPTO asked for introductory explanation added to specification.

This error by USPTO also reinforces why USPTO requested a basic level explanation at the time of the personal interview in 2009. This material is hard and so they need something that is at a lower level of difficulty than Bansal. That is why they asked for that easier and easy basic level explanation at the time of the personal interview in 2009.

That was a request not for something at the level of difficult of Bansal but something easier. As stated earlier, applicant at first understood that as a request for an explanation on the side for examiner and then examiner said that he wanted it in the specification not just for him on the side. Examiner needed that easier introduction and basic level guide at a level below Bansal to respond to the claims on their substance.

As stated earlier, examiner said applicant could make the addition to the specification before the next office action in an amendment. However, as it turned out, the office response came before the applicant could submit an amendment with the basic level simplified and introductory level explanation that examiner needed to evaluate the claims better. Thus the basic level explanation at a low level of difficulty as an amendment to the specification and not on the side for examiner only did not arrive until the January 2010 amendment by applicant. It was added to the specification in the amendment and not on the side as instructed by examiner after applicant indicated he would provide it on the side during the 2009 personal interview.

As this claim makes clear, even with that lower level easier to understand explanation, Bansal is still hard enough that the time of USPTO for examination even with more than one examiner involved was insufficient to realize that Bansal was interest rate only and so was not prior art.

This thus proves that the additional explanation requested by examiner in the 2009 personal interview at a lower level than Bansal was needed by USPTO to educate itself on material it finds a difficult learning curve, a process still under way on Bansal.

It is in the nature of this material that it is difficult, and that is true for others not just examiners who are doing their best to learn it. That is why they asked for the additional explanation from applicant at an introductory level. They also asked for it be in the specification not just on the side, which is why it was included in the specification as an amendment as examiner explicitly instructed applicant to do after applicant said he would provide it on the side outside the application.

6.6 Additional 103 Rejections

6 – 1 Office Statement Claim 26 USPTO reads use computer method into Bansal not just mathematical operations

As per claim 26;

Bansal does not disclose:

The method of claim 25 further comprising where a general financial variable is calculated by the computer using the regime switching economic scenarios to calculate on the computer a variable used to calculate a financial payment (Pg. 1998, Para 2).

However, the examiner asserts that claim 26 is intended use (MPP 2106 C).²

6 – 2 Applicant Response to Office Statement Claim 26

The USPTO response on claim 25 based on Bansal was found to be incorrect because Bansal does not disclose any joint simulation of equity and interest

² Further down, but seems to apply to here as well as subsequently, the office action states sentence inserted here from later in USPTO office action.

rates with a regime switching process. Since the claim 26 rejection is based on the now incorrect claim 25 rejection, the claim 26 USPTO rejection fails as well.

6 – 3 Office Statement Claim 27 USPTO reads use computer method into Bansal not just mathematical operations

As per claim 27;

Bansal does not disclose:

The method of claim 26 further comprising wherein said financial payment is used to execute a financial transaction.

However, the examiner asserts that claim 26 is intended use (MPP 2106 C).

6 – 4 Applicant Response to Office Statement Claim 27

This seems to mean that the intended use of a computer asserted for claim 26 is inherited to the rejection for claim 27.

The USPTO response on claim 25 based on Bansal was found to be

incorrect because Bansal does not disclose any joint simulation of equity and interest rates with a regime switching process. Since the claim 26 rejection is based on the now incorrect claim 25 rejection, the claim 26 USPTO rejection fails as well.

6 – 4.1 Further on computer and intended use

The following is restated from the response on claim 25.

First note that the USPTO itself in this statement says that there is disclosure of a computer and use of a computer in this claim and the others. This contradicts the rejection made by USPTO elsewhere that the claims are rejected for just stating mathematical operations.

Moreover, USPTO is reading a computer into Bansal. USPTO argues that this is acceptable. This means that the recitation of a computer needed in a claim is minimal. Applicant's claims explicitly mention use of a computer and do so more than Bansal does, which USPTO finds to be enough or finds it comfortable to consider equivalent.

6 – 5 Office Statement Claims 28-39 same rationale

Claim 28-39 are rejected under the same rationale used to reject claims 25-27.

6 – 6 Applicant Response to Office Statement

The USPTO response on claim 25 based on Bansal was found to be incorrect because Bansal does not disclose any joint simulation of equity and interest rates with a regime switching process. Since the claim 26 rejection is based on the now incorrect claim 25 rejection, the claim 26 USPTO rejection fails as well. The same applies to the claim 27 rejection.

The claim 28-39 rejections are based on these incorrect rejections and so those rejections fail as well.

6 – 6.1 Claims 28-39 contain matter not in Bansal

Bansal only considers the CIR class of models and focuses mostly on the one factor CIR class of models. This does not include the Double Mean Reverting Process that is used in several claims by applicant.

6 – 6.2 Claims 28-31 have DMRP not in Bansal

Claim 28 has DMRP in it. Claims 29 to 31 are derived from claim 28.

6 – 6.3 32-35 additional restrictions over Bansal

Claim 32 has the additional selection of a set of data based on the regime index. Claims 33 to 35 add further restrictions. Bansal uses a closed form solution for bond prices so he doesn't need to calculate grids of data for numerical solution.

Nor does Bansal contemplate using his model to feed an asset liability system for other assets and liabilities such as insurance companies use for risk management. Claims 33 to 36 are for this type of auxiliary data used for feeding other systems or to do numerical calculations because a closed form solution is not available or as a way to preparing data for other systems and or just to prepare files of data.

6 – 6.4 Claims 35-36 use numerical method unlike Bansal closed form formula

Claim 35 is to a numerical method. Bansal has a closed form solution so he doesn't use numerical methods.

Claim 36 derives from claim 35 so Bansal does not cover it.

6 – 6.5 Claim 37-39 use exponential short term rate not in Bansal which is linear

Claim 37 specifies an exponential calculation to get the short term rate from a state variable. Bansal uses CIR in which the state variable is the short term rate for the one factor case and so its a linear calculation, itself, not an exponential. For other CIR models the short term rate is still not an exponential calculation of the state variable.

Claims 38-39 derive from claim 37.

Note that Beaglehole and Tenney 1991 derived much of the mathematical machinery for applying one and multifactor CIR models. These are widely cited.

The search Beaglehole Tenney Cox Ingersoll Ross has "About 427 results".

6 – 6.6 Applicant can help USPTO avoid mistakes in understanding like Bansal here

Applicant is happy to answer telephone, email, in person visits, or fax questions from examiners to avoid this type of error in claims analysis by the

USPTO and to expedite the examination of the patent. This is why the examiner requested the tutorial in March 2009 which applicant then offered to provide on the side, but examiner said no put it in the specification for everyone.

Applicant is a short drive away from USPTO, about 10 miles, and can stop by for even short meetings to answer simple questions in person where he can show the examiners where references like Bansal are not sufficient as prior art to the claims drafted.

6 – 6.7 Applicants prior published formulas are a basic part of math of the CIR models which Bansal builds on

Applicant's work is widely cited and applicant has contributed to the basic math of finance. While applicant's knowledge is not of everything, the searches show its widespread use in many models and papers and so can quickly eliminate basic errors like those shown here in the Bansal case.

Applicant views this as a cooperative venture and if examiners find prior art that does bear, applicant and examiners can work together to modify the claims to avoid it. This would be far more efficient for examiners than

starting out with a basic model like Cox, Ingersoll, and Ross, even with regime switching, that applicant has already contributed basic math to the field on and has already avoided in drafting the claims.

6 – 6.8 Relation to other parts of amendment

This section helps give substantial insight into the other parts of the amendment.

Bansal is inadequate as prior art because of use of an equity, numerical method elements in other claims, the use of an exponential interest rate function when Bansal is linear, the use of grids and auxiliary data for numerical methods or to facilitate preparing data for use by other systems, and so on. This illustrates why the examiner felt the need to request a tutorial at the March 2009 personal interview. When applicant offered to give that on the side, examiner said no, put it in the specification. The tutorial was the examiner's idea not the applicants.

In the course of the Bansal rejections, USPTO read in use of a computer as a statutory class for Bansal. This shows that USPTO does find statutory

classes in these claims. Applicant requests as a pro-se applicant that USPTO draft statutory claims. Until this is done, any final rejection is a violation of USPTO regulations, equal protection and due process of law. Applicant is available for consultation for this purpose to help in understanding the specification or avoiding the prior art of which applicant has extensive although not universal knowledge of.

Because of applicant's request to USPTO to draft statutory claims for a pro-se applicant, the only valid basis for a final rejection consistent with USPTO regulations is if USPTO found no possible new invention in the application. This is manifestly not the case. Applicant's extensive involvement in the field, the many textbooks citing applicant's formulas, Bernanke praising one of them, the copying of Applicant's terms such as Economic Scenario Generator, and so on make it a high burden for the USPTO to claim applicant has nothing new in the specification. USPTO's basic errors on Bansal as prior art show that. The claims were drafted to avoid papers like Bansal focused solely on interest rates or on the Cox, Ingersoll, and Ross model, a

model that applicant has contributed ground breaking mathematical formulas for in the Beaglehole Tenney 1991 paper that is widely cited.

Chapter 7

Office Action Conclusion

7.1 Conclusion

1 – 1 Office Statement

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William E. Rankins whose telephone number is 571-270-3465. The examiner can normally be reached on M-F 7:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hani Kazimi can be reached on 571-272-6745. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through PRIVATE PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

William E. Rankins

Examiner, ART Unit 3696

01/28/2010

Hani M. Kazimi

Primary Examiner, Art Unit 3691

1 – 2 Applicant Response to Office Statement

Applicant notes office reply. Office can contact applicant Monday to Friday at 703 799 0518 during the same hours and by fax at 703 799 4964 and by email at mfc@patriot.net. Applicant is happy to come by in person for discussion even for a quick discussion.

USPTO did not respond to applicants arguments in last amendment, claiming they were moot because of rejections in March 2010 office action. However, the rejection based on Bansal was incorrect, since Bansal is interest rates only and not interest rates, equities and regime switching and thus is not sufficient to reject claim 25.

Applicant has repeatedly requested USPTO to draft sample valid claims for applicant as a pro se applicant. Applicant repeats this request here. Applicant requests the claims be drafted based on the original specification.

This has never been done by USPTO. Until it is done, final rejection is a violation of USPTO regulations, due process of law and equal protection of the law. Once USPTO drafts such claims, it can not make a final rejection.

The only valid basis for a final rejection is if USPTO can assert there is no new invention in the original application that is statutory, novel and non-obvious. Because otherwise, USPTO has the burden of drafting claims for those for a pro-se applicant when requested. Applicant repeats that here, please draft a statutory claim that is valid based on the original specification, or do not make a final rejection and instead ask applicant's help if that is what is needed.